AMENDMENTS TO THE CLAIMS

Claims pending at the time of the 9/13/05 office action:

1-42.

Claims pending as a result of this response:

1-18.

Withdrawn claims in this response:

19-42.

Amended claims in this response:

None.

Cancelled claims in this response:

None.

Please amend the claims of the present application as set forth below.

1. (Original) A device comprising:

a substrate having a thickness extending between a first surface and a generally opposing second surface;

at least one patterned thin-film positioned over the first surface;

an orifice layer positioned over the at least one thin-film; and,

an elongate slot in the substrate between the first surface and the second surface, wherein the slot has a first length along the first surface taken generally parallel to a long axis of the slot, and a second shorter length that is spaced from and generally parallel to the first length, and wherein at least a portion of the slot is formed after the orifice layer is positioned over the thin-film.

2. (Original) The device of claim 1, wherein the slot has a third length along the second surface taken generally parallel to the long axis that is greater than the second length.

3. (Original) The device of claim 1, wherein the orifice layer has nozzles formed therein which are respectively positioned in fluid flowing relation with features formed in the at least one thin-film, and wherein some of the nozzles and features aid in slot formation and fluid ejection.

4. (Original) The device of claim 1, wherein the first length defines a maximum slot length.

5. (Original) The device of claim 1, wherein the second length defines a minimum slot length.

6. (Original) The device of claim 1, wherein the slot comprises at least one reinforcement structure that extends generally across the slot in a direction generally parallel to a short axis of the slot.

7. (Original) A device comprising:

a substrate having a slot formed therein between a first substrate surface and a generally opposing second substrate surface; and,

a layer assembly formed over the first substrate surface, the slot being defined, at least in part, by two generally oppositely positioned end walls of substrate material, wherein each end wall has an endwall portion which intersects the first surface at an obtuse angle as measured through the substrate material, and wherein each end wall portion is formed, at least in part, with the layer assembly in place over the substrate.

8. (Original) The device of claim 7, wherein the layer assembly comprises a first sub-assembly of layers formed over the first surface of the substrate and at least a second sub-assembly of layers formed over the first sub-assembly of layers the second sub-assembly of layers defining multiple firing chambers and multiple respectively positioned nozzles.

9. (Original) The device of claim 8, wherein at least some of the multiple firing chambers are not utilized in fluid ejection.

10. (Original) The device of claim 7, wherein each end wall portion comprises multiple faceted surfaces.

11. (Original) The device of claim 7, wherein each end wall portion

extends through less than one half of a thickness extending between the first substrate surface and the second substrate surface.

12. (Original) The device of claim 7 embodied as a print head.

13. (Original) A print cartridge incorporating the device of claim 7.

14. (Original) A device comprising:

an elongate slot formed in a substrate and extending between a first generally planar substrate surface and a second generally planar substrate surface, the elongate slot having a long axis and a short axis transverse the long axis; and,

an orifice layer formed over the first surface, wherein a region of the slot proximate the first surface approximates a portion of a trapezoid when viewed transverse a short axis of the slot, wherein a longest side of the trapezoid lies proximate the first surface, and wherein at least a portion of the slot is formed after the orifice layer is formed over the first surface.

15. (Original) The device of claim 14, wherein the slot has a maximum length in a direction which is generally parallel to the slot's long axis, the maximum length lying proximate to the first surface.

16. (Original) The device of claim 14, wherein the slot has a maximum length in a direction which is generally parallel to a long axis of the slot, the maximum length lying proximate to the second surface.

17. (Original) The device of claim 14, wherein the region of the slot which approximates a portion of a trapezoid extends from the first surface through less than half of the thickness of the substrate as defined between the first and second surfaces.

18. (Original) The device of claim 14, wherein the region of the slot that approximates a portion of a trapezoid is generally continuous, and further comprising a generally discontinuous slot region proximate the second surface, the generally discontinuous slot region being defined, at least in part, by one or more reinforcement structures that extend across the slot generally parallel to the short axis of the slot.

19. (Withdrawn) A method comprising:

forming at least one thin-film layer over a first surface of a substrate;

forming an orifice layer over the thin-film layer, and,

after said forming an orifice layer, forming an elongate slot between the first surface and a generally opposing second substrate surface, the slot having a long axis, wherein a cross-sectional view of the slot taken along the long axis defines a region proximate the first surface which approximates a portion of a trapezoid, wherein a longest side of the trapezoid is proximate the first surface.

20. (Withdrawn) The method of claim 19, wherein said act of forming at least one thin-film layer comprises forming and patterning multiple thin-film layers.

21. (Withdrawn) The method of claim 20, wherein said act of forming at least one thin-film layer comprises patterning multiple holes in the thin-film layer arranged in a pattern which generally approximates a footprint of the slot at the first surface.

22. (Withdrawn) The method of claim 21, wherein said act of patterning multiple holes comprises patterning multiple holes having the same geometric shape.

23. (Withdrawn) The method of claim 19, wherein said act of forming an orifice layer comprises patterning multiple holes in the orifice layer and wherein the multiple holes are arranged as generally opposing pairs arranged in two generally parallel rows that are generally parallel to the long axis and wherein individual holes in the orifice layer are respectively aligned to be in fluid flowing relation with individual holes patterned in the thin-film layer.

24. (Withdrawn) The method of claim 23, wherein said patterning multiple holes in the orifice layer comprises patterning multiple holes at least some of which are intended primarily to aid in said act of forming a slot and not primarily to eject fluid.

25. (Withdrawn) The method of claim 19 further comprising prior to said act of forming an orifice layer, patterning a thick-film layer over the at least one thin-film layer to at least partially define individual firing chambers.

26. (Withdrawn) The method of claim 19, wherein said act of forming an orifice layer comprises forming an orifice layer having a first layer which defines various firing chambers, and a second layer configured to define individual nozzles for respective individual firing chambers.

27. (Withdrawn) A method comprising:

patterning a first set of dummy features in a first layer positioned over a first surface of a substrate;

patterning a second set of dummy features in a second layer positioned over the first layer, and, after said acts of patterning, forming a slot in the substrate, at least in part, by allowing an etchant to pass through the first and second sets of dummy features to the first surface.

28. (Withdrawn) The method of claim 27, wherein said act of forming comprises forming a slot having a tapered elevational profile that tapers inwardly from the first surface and wherein the first and second sets of dummy features are positioned over tapered portions of the slot.

29. (Withdrawn) The method of claim 27, wherein said act of patterning a first set of dummy features comprises patterning a first set of dummy features generally simultaneously to patterning multiple ink feed holes in the first layer.

30. (Withdrawn) The method of claim 27, wherein said act of patterning a first set of dummy features comprises patterning both the first set of dummy features and multiple ink feed holes in the first layer, and wherein the first set of dummy features and the ink feed holes are arranged in a pattern that approximates a slot footprint at the first surface, the first set of dummy features being positioned at opposite ends of the footprint, the ink feed holes being positioned between the first set of dummy features.

31. (Withdrawn) The method of claim 27, wherein said act of patterning a first set of dummy features comprises patterning a first set of dummy features positioned in a first group over a first end of a footprint of the slot, each dummy feature of the first group having a center, and a second group at a second generally opposing end of the footprint, each dummy feature of the second group having a center and wherein the centers of the first group of features and the centers of the second group of features are respectively arranged to define a triangle.

32. (Withdrawn) The method of claim 31, wherein said act of patterning the first group of features and the second group of features patterns the first and second groups of features so that the centers of each group define an isosceles triangle, and wherein each isosceles triangle is bisected by a line which is generally parallel to a long axis of the slot.

33. (Withdrawn) A method comprising:

patterning features into a first layer positioned over a first surface of a substrate; and,

patterning features into a second layer positioned over the first layer, wherein at least some of the features formed by the acts of patterning are intended primarily to allow a slot to be formed in the substrate and not primarily to eject fluid, the slot being defined, at least in part, by at least one end wall of substrate material, the end wall having an endwall portion which intersects the first surface at an obtuse angle as measured through the substrate material.

34. (Withdrawn) The method of claim 33, wherein said act of patterning features into a second layer comprises patterning features into a thick-film layer.

35. (Withdrawn) The method of claim 33 further comprising forming the slot by removing substrate material from a second surface of the substrate which is generally opposite the first surface and then exposing the substrate and the first and second layers to an etchant material to remove additional substrate material and wherein at least some of the etchant material reaches the first surface by passing through the features that are intended primarily to allow the slot to be formed in the substrate and not primarily to receive fluid from the slot.

36. (Withdrawn) The method of claim 35, wherein said act of removing comprises removing substrate material from multiple distinct regions of the second surface.

37. (Withdrawn) The method of claim 35, wherein said act of removing comprises patterning a hard mask on the second surface and etching through the hard mask.

38. (Withdrawn) The method of claim 35, wherein said act of removing comprises one or more of laser machining and sand drilling.

39. (Withdrawn) A method comprising:

forming a layer assembly over a first surface of a substrate, wherein the layer assembly defines multiple nozzles at least some of which aid in formation of a slot in the substrate and do not eject fluid; and,

after said forming the layer assembly, forming the slot in the substrate.

40. (Withdrawn) The method of claim 39, wherein said act of forming the layer assembly comprises forming dummy features in a first sub-assembly positioned over the substrate and wherein the nozzles are formed in a second sub-assembly formed over the first sub-assembly and wherein individual nozzles are respectively positioned in fluid-flowing relation to individual dummy features.

41. (Withdrawn) A method comprising:

forming dummy features in at least a first layer formed over a substrate and a second layer formed over the first layer; and,

forming a slot in the substrate, at least in part, by etching through the dummy features.

42. (Withdrawn) A method comprising:

forming features in a first layer formed over a substrate; and,

forming features in a second layer wherein individual features in the first and second layers are in fluid flowing relation but are not intended to contain fluid during a fluid ejection process.